

WHAT IS CLAIMED IS:

1. A combinatorial lubricating oil composition library is provided comprising a plurality of different lubricating oil compositions comprising (a) a major amount of a base oil of lubricating viscosity and (b) at least one lubricating oil additive.

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2. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil is selected from the group consisting of engine oils, transmission fluids, hydraulic fluids, gear oils, marine cylinder oils, compressor oils, refrigeration lubricants and mixtures thereof.

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3. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil has a viscosity of about 2 to about 2000 centistokes (cSt) at 100°C.

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4. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil has a kinematic viscosity of about 2 cSt to about 30 cSt at 100°C.

5. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil has a kinematic viscosity of about 3 cSt to about 16 cSt at 100°C.

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6. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil has a kinematic viscosity of about 4 cSt to about 12 cSt at 100°C.

7. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil has a SAE Viscosity Grade of 0W, 0W-20, 0W-30, 0W-40, 0W-50, 0W-60, 5W, 5W-20, 5W-30, 5W-40, 5W-50, 5W-60, 10W, 10W-20, 10W-30, 10W-40, 10W-50, 15W, 15W-20, 15W-30 or 15W-40.

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8. The combinatorial lubricating oil composition library of claim 1, wherein the at least one base oil is a natural or synthetic oil.

9. The combinatorial lubricating oil composition library of claim 1, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

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10. The combinatorial lubricating oil composition library of claim 2, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

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11. The combinatorial lubricating oil composition library of claim 3, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-
5 solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

12. The combinatorial lubricating oil composition library of claim 4, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants,
10 anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

13. The combinatorial lubricating oil composition library of claim 5, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-
15 solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme
20 pressure agents and mixtures thereof.

14. The combinatorial lubricating oil composition library of claim 6, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-
5 solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

15. The combinatorial lubricating oil composition library of claim 7, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants,
10 anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

15 16. The combinatorial lubricating oil composition library of claim 8, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-
solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme
20 pressure agents and mixtures thereof.

17. The combinatorial lubricating oil composition library of claim 1, further comprising lubricating oil composition property data for each of the different lubricating oil compositions.

5 18. The combinatorial lubricating oil composition library of claim 17, wherein the lubricating oil composition property data is selected from the group consisting of storage stability data, oxidation stability data, antiwear data and mixtures thereof.

10 19. The combinatorial lubricating oil composition library of claim 18, wherein the storage stability data comprises a sedimentation measurement, color measurement or a viscosity measurement.

20. A method for producing a combinatorial lubricating oil composition library comprising

15 (a) providing a library of a plurality of different lubricating oil composition samples comprising (i) a major amount of at least one base oil of lubricating viscosity and (ii) a minor amount of at least one lubricating oil additive, each sample being in a respective one of a plurality of test receptacles;

 (b) measuring lubricating oil composition properties of each sample to provide the
20 lubricating oil composition property data for each sample; and,

 (c) outputting the results of step (b).

21. The method of claim 20, wherein the at least one base oil is selected from the group consisting of engine oils, transmission fluids, hydraulic fluids, gear oils, marine cylinder oils, compressor oils, refrigeration lubricants and mixtures thereof.

5 22. The method of claim 20, wherein the at least one base oil is a natural or synthetic oil.

23. The method of claim 20, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust
10 inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

15 24. The method of claim 20, wherein measuring step (b) comprises a storage stability measurement, oxidation stability measurement, or antiwear measurement.

25. The method of claim 24, wherein the storage stability measurement comprises a sedimentation measurement, color measurement or a viscosity measurement.

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26. The method of claim 20, wherein in step (c) the result of step (b) for each sample is transmitted to the computer, the computer compares the result with a predetermined value delimiting a failure or passing of the result, and the computer identifies failed samples to preclude further testing of the failed samples.

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27. The method of claim 20, wherein the step (c) of outputting comprises storing the results of step (b) on a data carrier.

28. The method of claim 20, further comprising the step of using the results of
10 step (b) as a basis for obtaining a result of further calculations.

29. The method of claim 27, further comprising the step of transmitting the result of step (b) to a remote location.

15 30. The method of claim 28, further comprising the step of transmitting the result of further calculations to a remote location.